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ACTIVITY REVIEW REPORT

POLLUTION ABATEMENT AND SEWAGE TREATMENT

WASATCH NATIONAL FOREST

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May 10-14, 1976

August 3-4, 1976

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1. Introduction

- a. Type of review - Activity review of the Water Pollution Abatement and Sewage Treatment Activity on the Wasatch-Cache National Forest.
- b. Units or Geographic area reviewed - The review was limited to the Wasatch-Cache National Forest and included Ranger Districts.
- c. Review Team - Ron Hayden, Assistant Director, Engineering, Team Leader; Dale "Jack" Frost, Assistant Director, Engineering; Kent Bingham, Civil Engineer, Water and Sanitation; Ray Kinyon, Director, Administrative Services; and Bill Rozynek, Recreation Plans and Administration; acted as principal consultants.
- d. Review dates - S.O. and Wasatch Front field review was May 10-14, 1976, and North Slope field review was August 3 and 4, 1976.
- e. Elapsed time since last review of similar type - This is the first review of this type on the Wasatch-Cache National Forest.
- f. Brief description of how the review was conducted, principal participants at units and major locations visited:

The review was divided into two major parts because of weather and scheduling problems. The first major part consisted of S.O. review and familiarization of the team with essential Forest background and project information. This was obtained from S.O. files during the office portion of the review.

This first part also included on-the-ground review of existing and proposed projects on Salt Lake, Ogden, and Logan Districts, and discussion of program problems with the Rangers and S.O. Engineering personnel at the sites.

The second major part of the review consisted of an on-the-ground review of existing and proposed projects on the Kamas, Evanston, and Mountain View Districts. These sites had not been available for review during the spring because of weather and climatic conditions.

The principal participants and major locations visited were:

(1) May 10-14:

S.O. - Chandler St. John, Forest Supervisor; James Cochran, Deputy Forest Supervisor; John Nielsen, Forest Engineer; Richard Bird, Supervisory Civil Engineer; John Reese, Sanitary Engineer; and Jack McDonald, Administrative Officer.

Field Review - accompanied by John Nielsen, Forest Engineer; Richard Bird, Supervisory Civil Engineer; and John Reese, Sanitary Engineer.

Salt Lake District - Lynn Sprague, District Ranger.

Visited Little Cottonwood Canyon project - (Tanner Flat), Big Cottonwood Canyon, (Brighton Campgrounds, Brighton Bowl, Redman Campground, Spruces Campground), Mill Creek and Mueller Park.

Ogden District - Dee Ritchie, District Ranger. Accompanied by Cliff Miller, Director of Engineering.

Visited Pineview Reservoir facilities, Huntsville Work Center, and all campgrounds on South Fork, Ogden River from Maggie Campground to Meadows Campground.

Logan District - Duane Boder, Maintenance Work Leader and Neff Hardman, Forestry Technician.

Visited Box Elder Campground and lagoon, and recreation facilities in Logan Canyon from Bridger Campground to Sunrise Campground.

(2) August 3 and 4:

Accompanied by Ray Kinyon and Bill Pozvnek.

Kamas District - Steve Scott, District Ranger; Clark Ostergaard, S.O. Landscape Architect; Greg McKenzie, Forester; and Jerry Horton, R&L Branch Chief, S.O.

Visited Provo River Central Disposal facility, trailer dump station, and Mirror Lake Campground and Guard Station.

Evanston District - Doc Smith, District Ranger and Clark Ostergaard, S.O. Landscape Architect (3rd only).

Visited Christmas Meadows Campground, Bear River Administrative Site, Bear River Central Disposal facilities, Bear River Trailer dump station, Mill Creek Guard Station, and Meeks Cabin Reservoir Campground.

Mountainview District - Ranger was not available.

Visited China Meadows Campground, Bridger Lake Campground, Bridger Lake Guard Station, proposed Stateline Reservoir Campground, and Mountainview Administrative Site.

2. Summary of Review

a. Objective

The objective of this review was to recognize and document problems and obstacles which had caused delays and deficiencies, and to develop a plan of action to correct these deficiencies and improve accomplishment of future plans and programs.

Many of the proposed projects require close coordination between the Forest and local governmental bodies during planning, design, and construction stages. Some projects requiring this coordination have been deferred or delayed by the local bodies and Forest programs and project financing have had to be adjusted.

The planning for and construction of sewage treatment facilities on the Wasatch National Forest will comprise about 61 percent of the total Regional program in this activity over the next six years. The budget proposed by the Forest for the planning, design, and construction of facilities under the Pollution Abatement Program from the transition quarter through FY 1981 amounts to approximately 10 million dollars. With Regional Office and Washington Office costs included, the program exceeds 15 million dollars.

b. Description of problems identified and causes.

The major problems identified and their causes are:

1. Accomplishment of the pollution abatement program has fallen behind the original approved schedule. One of the primary reasons is that local governmental authorities with whom we coordinate and cooperate, are behind in the planning process.

2. In May 1971, Regional Office direction was given to the Forests in the form of an information, guidelines, and design criteria package. Actual R.O. direction on the procedure to follow was made to vary from that published in order to accommodate Congressional add-on projects like Tanner's Flat Campground and Mueller Park. Funds for these projects were obligated before the Engineering Report had been prepared and approved. Funds were released late in the fiscal year and it was expeditious for the Forest to vary the procedure to accomplish the work.
3. There is no direct tie between the processes involved in project planning and program planning, and funding. This is the result of funding the Forest for the stages of the process (planning, design, construction) which the Forest says it can accomplish, whether realistic or not. The amount of time required for the planning, design, and review of these steps plus contracting action can barely be done in one fiscal year if all goes well and there are no delays.
4. In some cases, neither the Forest nor the R.O. has properly considered the prerequisites for a valid project. For example, the Engineering Report for the Bear River Project displayed several alternative solutions to the pollution abatement project. The course of action selected assumed that water could be made available by drilling a well. If this assumption had not been made, water would have had to be known to be available at the site before the selected alternative could be a viable one.
5. The time for preparation of Engineering Reports on Cooperative projects could cause additional delays. This is because the Forest has decided not to spend time or manpower on these projects until the local authority has decided on a course of action. The decision to delay preparing reports is based on past experience on the Mountain View project where a decision by the community negated much of the in-depth planning previously done by the Forest.
6. Design errors have been made and propagated in the Region even though corrected locally. This is partly due to the fact that the R.O. told the Forests not to send in Final Construction Reports or as-built drawings. This effectively cut off feedback from the Forest to the R.O.

Alternatives considered feasible:

Those alternatives for improving the pollution abatement and sewage treatment activity on the Forest must be placed in different categories before their benefits can be analyzed. These categories are:

- Project Planning
- Project Design
- Project Implementation
- Facilities construction
- Facilities Operation
- Facilities Maintenance

Project implementation has been included to show alternatives to be considered in a case where no new facilities would be constructed to abate pollution or treat sewage. For example, this would include working on a cooperative agreement with a community to provide for dumping vault wastes in an existing municipal system. Forest personnel investigated this alternative, but had to discard it because they could not get help from the R.O. in exploring in depth the possibility of writing cooperative agreements with local authorities to provide for dumping wastes.

Alternatives considered feasible are:

General:

- (1) R.O. to review all of the past direction for the pollution abatement program, revise and send the revised package to the Forests. Also place the revised package in the Manual as a Regional Supplement.
- (2) Forest or R.O. propose additional emphasis on proper funding and identification of funds for the total program, including sampling, operating and maintenance costs.
- (3) Propose that funding be provided on the basis of "priority phase" accomplishment. Planning money would be provided initially. Design money would be provided only after the Engineering Report was approved. Construction money would be provided only after the design was approved.
- (4) ^{PROGRAM} Provide planning and design money in one fiscal year. Provide construction money in another fiscal year and only after designs had been approved.

Providing planning, design, and construction money in one fiscal year is not considered a viable alternative except for very small projects because of the time required to do the work and obtain the approvals.

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- (5) Increase personal contacts between Forests and R.O. to keep Forest designers current on the state of the programs, new design procedures and equipment.

Project Planning:

- March 1987
- (1) Regional Office emphasize the need for fulfilling requirements for planning and approvals for projects in the pollution abatement and sewage treatment programs and convey this need to the Forests.
 - (2) Forests involve R.O. people early in the planning stages to gain better understanding of projects and to reduce the need for changes or revisions.
 - (3) R.O. update direction and give examples of proper procedures to follow when planning to include permittees and others in an abatement or treatment project.
 - (4) Where local governments are involved, delay final planning for pollution abatement or sewage treatment projects until local governments have completed their planning and have decided what they are going to do.
 - (5) Where local governments are involved, complete final planning through the listing of alternatives, along with cost estimates. Delay the selection of the desired alternative until local governments have decided on a course of action.
 - (6) Emphasize to the Washington Office the continued need for flexibility in carrying over funds [where we must cooperate with local governments.]
 - (7) Assure that all basic information needed to make a project proposal viable have been proven. Deal in fact and not conjecture or assumption.
 - (8) Continue to select desired alternative on the basis of assumed information with the idea it will be proven during construction.
 - (9) Determine operation and maintenance costs as accurately as possible for proposed alternatives so an evaluation of the practical feasibility of the project can be made.

Project Design:

- (1) Forest involve R.O. specialists in early stages of design to increase R.O. commitment and reduce time needed for review and revision.
- (2) Emphasize reduction of operation and maintenance in preparing designs.

Project Implementation:

- (1) R.O. provide direction and samples of cooperative agreements, etc. to the Forests for providing for treatment of F.S. Sewage in existing or proposed municipal facilities.
- (2) R.O. provide direction and samples of agreements, etc. for permitting private parties to dump their sewage in F.S. facilities.

Facilities Construction:

- (1) Promote closer coordination and cooperation between Forest and R.O. to correct inadvertant errors in design during initial construction and to provide feedback on needed changes to designers and reviewers.

Facilities Operation:

- (1) Where funding has been provided by the Washington Office in the recreation and maintenance of improvements budgets, identify that money so R.O. and Forests know what has been provided.
- (2) Forest Contracting Officer provide samples of vault pumping contracts to R.O. and to Ranger Districts for information.
- (3) R.O. review the possibility of providing water testing services to the Forest from the Salt Lake Materials Lab. Review to include costs estimates.
- (4) Provide a technician to operate sewage treatment facilities on a Forest-wide basis.
- (5) Provide a technician to operate sewage treatment facilities and help pump vaults on the Forest.
- (6) Have the CDA operate treatment facilities, but provide additional formal and on-the-ground training.

- (7) Review possibility of a service contract including vault pumping (Forest Service and private) and the operation of F.S. treatment facilities by the contractor.

Facilities Maintenance:

- (1) Propose a method of annually setting aside funds for the replacement of mechanical and electrical equipment. This could be Region-wide or Forest by Forest.
- (2) Set up a Regional WCF operation for Facilities Maintenance of sewage facilities.

3. Commendations

Those responsible for the operation and maintenance of the Bear River Central Disposal dump station have done an excellent job in maintaining a clean area, uncluttered with refuse like bottles and cans. Members of the review team had seen other dump stations where cleanup was completely lacking. It was refreshing to discover a place where the job was done properly.

The engineers did an excellent job in redesigning the dump station for screen installation. This has been a troublesome detail throughout the Region. The Forest should feed this information back to the R.O. for dissemination to other Forests so they can avoid making errors in design.

The Provo River Central Disposal site presents a very pleasing appearance to the eye. Since it may be visible from some summer homes located above it, special care was taken to reduce the visual impact. The irregular shape of the lagoons, green vinyl coated chain link fence, and green building have all served to make the installation less conspicuous. Although the initial cost was more, we immediately gained the visual benefits with no increase in annual operation and maintenance costs.

The Forest has performed extremely well in working with the community of Mountain View, Wyoming, to provide a cooperative solution to joint pollution problems. This coordinating effort has taken five years and has doubtless proven to be frustrating at times. The perseverance in this effort has finally brought about the possibility that a central disposal site, as well as hook up of administrative site facilities, will provide the services we need at a greatly reduced cost to the Forest Service. This effort is being used as a model for cooperation and coordination with local governments on the Forest.

The records and summary of operation and maintenance which were kept by the Kamas Ranger District have been a valuable tool for the team. We have found such records difficult to acquire and wish to thank those on the District who were thoughtful enough to keep the records and make the summary available to us.

The signs at trailer dump stations which were used to denote safe and unsafe drinking water supplies were very well done. We congratulate the Forest on taking care to be concerned about these important 'details.'

4. Statement of Findings and Analysis of Alternatives

- a. Status of pollution abatement and sewage treatment programs on the Wasatch National Forest — The Forest has 12 projects listed in the current Water Pollution Abatement Program. The present status of these projects is:

1. Big Cottonwood Canyon Projects — This is the general name covering four projects listed in the program as Brighton Sanitation, Spruces, Redman and Brighton Bowl. The Forest is working with the Big Cottonwood Sewer District in planning the proposed treatment facilities for the canyon.

A Federal study, 208 Grant, is being conducted by Salt Lake County and is scheduled to be completed by June 30, 1977. Upon completion of this study, the Sewer District will make schedules for the planning, design, and construction of treatment facilities.

The Forest has deferred planning of the above projects until FY 1977 so they can coordinate efforts with the Sewer District.

2. Mountain View — North Slope Projects — This is the general name covering two projects listed in the program as Mountain View Sanitation and North Slope Central Disposal.

The Forest is cooperating with the city of Mountain View in planning and constructing a sewage disposal dump facility at the city treatment plant and to hook up the Administrative Site facilities to the city sewer.

The city plans indicate design for October 1976 and construction for 1977. The Forest has therefore deferred the design of these projects until FY 1977. Transition quarter funding covers only incidentals relative to coordination with the City's planning.

3. Salt Lake Metering Station - The Forest is cooperating with local officials in the planning, design, and construction of an adequate dumping facility to receive vault wastes and meter them into a local community treatment facility. The Forest has deferred this project until after the 208 Study is completed in June 1977.
4. Bear River Dump Station - This project will supply make-up water to the Bear River Central Disposal, which was completed in 1974 and the trailer dump station. The Forest's final engineering report has been approved. The project has been designed and the Final Contract package will be submitted to the R.O. for review and approval by September 15. Construction is funded in the Transition Quarter, but funds will have to be carried over.
5. Tanner Flat Campground - This project will connect the remainder of the campground to the Little Cottonwood Canyon Sewer and provide a new water source and distribution system. The first phase was constructed with Congressional Add-on Funds. The engineering report for the second phase was approved July 1, 1976. The project is designed. The final contract package has been submitted. This project was funded for construction in the Transition Quarter.
6. Ogden River Central Disposal - Planning for this project will analyze the alternative methods for disposing of all vault waste in the Ogden River drainage. The Cache N.F. prepared preliminary engineering and site evaluation report covering essentially the same area in February 1972 (Magpie Campground - Central Disposal Project #01504). The conclusion was that it is best to continue hauling the waste to the Central Weber Sewer Improvement District Treatment plant near Ogden. The Wasatch N. F. which now administers the area, has been informed the Central Weber Plant may not continue to accept the waste. Funding for the preparation of an engineering report is provided in FY 1977.
7. Logan River Central Disposal - Planning for this project will analyze the alternative methods for disposing of all vault waste in the Logan River drainage as well as other drainages that feed into Cache Valley.

The Forest feels that the City of Logan will not permit the dumping of vault wastes into their system without pretreatment being done (screening and metering). Funding for the preparation of an engineering report is to be provided in FY 1978.

8. Mueller Park Campground - This project will convert the toilet facilities in the campground to flush toilets and provide sewer connections to the Bountiful City Sewer. Construction of the sewer in Bountiful is to be extended to the Forest Boundary (0.6 mile from campground). The Forest believes the state will request we connect to the community system. The campground is presently being renovated with Senatorial Add-on funds. Funding for the preparation of an engineering report is to be made available in FY 1977.

b. Accomplishment vs. Target Goals in the last five years.

In September, 1971, the Wasatch and Utah portions of the Cache reported 26 projects to be included in the pollution abatement program.

In January and February, 1972, the Washington Office modified the direction of the program and raised or established minimum criteria for inclusion in the program. Projects had to serve an average of at least 200 persons per day or dispose of an average of 10,000 gallons of sewage per day. Approximately seven projects remained after a review of the program in which these criteria were used. Kamas Administrative Site, Box Elder Campground, Mirror Guard Station and Mirror Lake Campground were completed during the period before February 1972.

Approximately two years later the Forests were asked by W.O. and R.O. to report all projects the Forest felt were polluters. The first report which included this information was received in February, 1974, and listed about 70 projects. During the two year period February 1972 to February 1974, the Bear River Central Disposal was completed.

The "Water Pollution Abatement Program Guidelines for Line and Staff Officers" (Yellow Book) was published in February, 1975. It eliminated certain classes or types of projects. After these criteria were applied, there were 13 projects remaining in the program. No projects were completed between February 1974 and February 1975.

One project, Provo River C.D., has been completed since February 1975, at a total cost of \$463,000.

The table below summarizes the changes in the pollution abatement program:

<u>Date</u>	<u>No. of Projects Reported</u>	<u>Remarks</u>
September 1971	31	Beginning of 5 year review period
February 1972	10	Raise in minimum criteria by Washington Office
February 1974	70	Forests to report all polluters
February 1975	13	Yellow Book Published
August 1, 1976	12	Present Program

Since February 1975, only one of the 13 projects has been completed, three have been designed, and 3 have had engineering reports completed. The table below shows the proposed program for pollution abatement projects. The Forest has learned through experience to space out the various phases of the project work in order to avoid some financing problems. The information shown was taken from Forest work forms submitted to the R.O. in April 1976.

NUMBER OF PROJECTS PLANNED FOR
COMPLETION OF VARIOUS PROJECT PHASES

<u>Fiscal Year</u>	<u>Plan No. & \$</u>	<u>Design No. & \$</u>	<u>Construct No. & \$</u>
Trans. Qtr.	* (2)	* (2)	* 2 \$682,000
FY 1977	8 \$520,000	1 \$155,000	0
FY 1978	2 \$172,000	6 \$323,000	0
FY 1979	0	3 \$647,000	7 \$3,672,000
FY 1980	0	0	2 \$4,550,000
FY 1981	0	0	1 \$4,663,000
Totals completed By FY 1981	12	12	12

* Planning (\$19,000) and design (\$43,000) for these two projects was completed prior to the Transition Quarter.

- c. Adequacy of Regional Office direction and assistance for the programs.

R.O. Direction for the pollution abatement program was given to the Forests in May 1971. This direction was presented through visits to individual Forests and through the issuance of an R-4 Water Pollution Abatement Program paper giving information, guidelines, and design criteria. Since that time, there have been numerous memos from the W.O. changing program direction and guidelines. Many of the projects originally included in the program have been eliminated from it by these changes.

It appears that the direction given by the R.O. was effective and fairly well followed until the summer of 1972. This is about the time the Region was supposed to be in the initial stages of closing down the Regional Office.

From that time on until about January of 1976, there had been a gradual reduction in R.O. direction and leadership in requiring compliance with the original R.O. direction of 1971 or with the requirements of the "Water Pollution Abatement Program Guidelines for Line and Staff Officers" which was published by the W.O. in February 1975. (The Yellow Book.)

Since January 1976, the R.O. has used the guidelines in the "Yellow Book" as the basic document for review and approval of pollution abatement projects.

It appears that W.O. and R.O. direction and guidelines are adequate to properly implement and control projects in the program, but there has been a lack of proper R.O. emphasis on fulfilling the requirements of the process. The result has been:

1. A lack of timely review by all R.O. staff groups involved, resulting in a lack of agreement on the proper solution to a pollution abatement project. This review and agreement should be done upon the completion of an Engineering Report and prior to design.
2. A tendency for Forests to select what appears to be a viable solution to a pollution problem, design the facilities and present them for R.O. review and approval at the same time contract action is requested. This procedure has resulted in writing engineering reports which defend the selection of the alternative already designed, delays caused by poor designs which have to be revised, and delays in contract action while awaiting engineering approval of the designs and engineering reports. The method of funding projects caused the Forests to take this action.

Some of the situations as described above have been precipitated by the addition of Congressional add-on projects to the program. The money received was for the construction of facilities which were supposed to have been previously designed and were ready for contract action. This has not always been the case, as in the Tanner Flat project.

An add-on funding was made available to the Forest in fiscal year 1974 (July 1, 1973 - June 30, 1974). We don't know at what time the money was actually made available, but do know that the Engineering report was prepared by October 22, 1973, the E.A.R. was approved on January 24, 1974, and contract bids were opened on June 25, 1974. Thus, all of the planning, design, and contract award were performed in the same year funds were made available.

Another area of concern in planning for and constructing facilities is the direction given to the Forests regarding the proper procedure to follow to include permittees and others when constructing the facilities. Direction for cooperation was poor and sometimes conflicting. It did not consider the tenuous position of special use permits. Although direction from the W.O. was available, it was not placed in the Manual where designers would normally be looking.

R.O. Direction to the Forests (Item 7, page 3, 1971 pkg.) stated that "Where a National Forest permittee's installation or a private development is adjacent to a Forest Service proposed sewerage system and it is feasible to provide connections at their expense, the design of the system should be made adequate to handle waste from the special use, as well as Forest Service generated sewage."

Since the R.O. package was the most complete direction available to the designer, it is not beyond reason to think that some facilities were designed and constructed to include sewage from private installations without any provision for obtaining their fair share of the costs of construction, maintenance, and operation. W.O. direction as to the proper procedure which required permittees and private developpees to pay their share of construction costs was presented in ED#5 to FSM 2340 - the recreation portion of the Manual - on September 22, 1971. Unless this particular ED had been brought to the attention of the designer or a reviewer caught the problem during the review process, a facility could have been designed to include others without following the correct procedure.

Examples of where this could have happened are the Provo River Central Disposal which was sized to accommodate the YMCA camp and the Soapstone Summer Home Group. The Bear River Central Disposal was sized to include the Mirror Lake Lodge facilities and other special use groups.

Because there have been numerous changes in direction in the pollution abatement program, there is still confusion among those on the Forest charged with administering the program as to what direction is current and correct. There is a need for the R.O. to review all of the past direction, revise and update the Regional direction package, send the revised package to the Forests for immediate information, and place it in the Manual as a Regional Supplement.

d. Accomplishment of coordination with local governments.

Working with local governments in attempting to cooperate on selecting and implementing solutions to pollution problems has been a long drawn out, often frustrating, process. The Forest has spent many manhours and some pollution abatement planning dollars in the past to attempt to arrive at solutions to Forest pollution problems in areas where joint F.S. - local government ventures appeared to be the proper solution to both parties problems. Perhaps not all of these expenditures of time and money were necessary, but many of them were. They will still be necessary to some extent in the future in order to prepare engineering reports on which to base F.S. decisions on the course of action.

The Forest has assumed a take-it-slow attitude in its approach to cooperating with local governments in planning for pollution abatement measures. This is the proper attitude to take to minimize lost time and expenditures until local governments are willing and in a position to proceed with meaningful planning which will lead to the design and construction of facilities or to the implementation of an abatement program.

There are some things which should be done now, however, to avoid delays when the local agencies are ready to proceed. The preliminary or rough draft engineering reports for these projects should be prepared up through the listing and cost estimating of various alternatives. The selection of the alternative, revision of cost estimates, and completion of the report could be left until after the local authorities have decided what they are going to do. This procedure would reduce the time needed to prepare and approve the engineering report.

We are concerned that this work will not be done when it should be, especially with the small number of people available to do work of construction inspection on pollution projects within the next year or two. An additional sanitary engineer who is experienced in the planning phases of the work may be needed.

- e. Problem areas in the Forest Service - local government process.

The major problem in the Forest Service - local government cooperation and coordination process is the one of timing. We are at the mercy of the local government when it comes to establishing target dates for various phases of the process. Our present program and budgeting process, if strictly adhered to, does not permit enough flexibility to provide for these timing changes.

The target dates have generally been moved back on the calendar and adjustments to the schedule have been made by returning funds in one year coupled with a request for them again in the following year or by carrying them over. It is surprising that this part of the program has been funded and proceeded as well as it has. This denotes cooperation and candidness on the part of the Forest and R.O. budget people.

Continued flexibility and ability to make changes to provide funding when needed to cooperate with local governments is essential if this program is to be successful.

- f. Work processes involving project and program planning, funding and control.

As noted earlier, the numerous changes in direction, and some failures in communication, have resulted in problems in following adequate work processes to arrive at proper or correct solutions for pollution abatement projects. This is best illustrated by reviewing the process used on the Bear River Project. The process for the first project is fairly typical of most projects which followed the procedure given in the Manual and in the Yellow Book. The process for the second project (to supply water to the site) did not follow the proper procedures and has caused problems.

The Engineering Report for the construction of the Bear River lagoons was prepared and approved. The drawings and specifications were prepared and approved on April 9, 1972 and the contract was then awarded. This is the basic accepted approach. Of course, there are several minor steps, between these major decision points along the way.

The process for the second project deviated from this approved and required procedure. The drawings and specifications for this project were completed by the Forest and sent in to the R.O. for review before the R.O. received a copy of an updated engineering report covering this project. Consequently, there was no agreement or commitment by staff groups, other than engineering, in the R.O. on the course of action to be followed. After the drawings were submitted, the Forest was informed that an engineering report was required. A revised report was submitted and sent to all concerned R.O. staff groups for review and comment. Questions were raised by the Recreation Staff Group about the validity of pollution abatement funding for the chosen alternate.

A review of the records shows that the Forest Engineer attempted to get a contract for the well drilling before the contract for construction of the lagoons was awarded, but he was unsuccessful in this attempt. The well project, a separate contract, was started after August 14, 1972. The well contract resulted in a dry well. Had the Forest Engineer been successful in his attempts to have the well drilled first, the lagoon contract could have been cancelled and other more suitable sites or alternatives considered.

The records also indicate that the probable reason for not allowing the well to be completed first was because money for construction was available in FY 1972 and had to be obligated before June 30, 1972, and it was.

Since the success or failure of the lagoon facility was dependent upon the availability of water, it seems reasonable to expect that future cases similar to this should provide for the proving of the availability of items essential to the success of a project, such as water supply, be made a part of the engineering report. The fact that we assumed the availability of water, or took a chance on it, has increased costs of this project tremendously.

One alternative which could be used to control the process used in the program would be to give a Forest planning money only. Upon receipt and approval of the Engineering Report by the R.O., the money for design could be distributed to the Forest. After the design and specifications have been approved by the R.O., the Forest would get the money for contracting. The Forest would still have to request the money for these steps through the budget process.

- g. Problems and obstacles to performance and management of the projects and program.

Several problems and obstacles to performance and management have been identified. They are:

- (1) Numerous letters from the W.O. and R.O. changing or adjusting program direction. These letters become lost in the files and there has been no systematic program for including this information in Manual amendments, emergency directives, or Regional Supplements. Providing the latest up-to-date program direction in Manual Supplements, preferably under PSM 7400, would be extremely helpful to those responsible for the program.
- (2) Providing funding for the three major items of work — planning, design, and construction — in one year makes it almost impossible to follow the required procedure and meet target dates. One alternative is to not allow Forests to request planning, design, and construction funds in one fiscal year. A better method is described under f above.

Another alternative is to change the prescribed procedure. This would be difficult to do because of the amount of time needed for performance, review, and required approval of the various steps.

- (3) Providing technical manpower to operate the facilities. As the numbers and complexity of the treatment facilities increase, it becomes more difficult to operate and maintain them using regular district personnel. Most of these people are not adequately trained or technically oriented to this type of operation. Although they have performed satisfactorily so far, they recognize their own inadequacies in this field. In fact, some Rangers are asking for technician to operate the facilities.

The Forest could provide more training to the GDA and have him operate the facilities. Some have already received limited training. This additional assignment will reduce the amount of time this individual has to perform his other assignments — which constitute a full workload now.

The Forest could hire an engineer or, probably better, a technician to operate and maintain the various installations. If this person did not use all of his time in operations and maintenance he might be able to get some equipment and help pump vaults or help maintain water systems.

The Forest could investigate the possibility of getting a three-year service contract which would include pumping Forest Service vaults, permit contractors to pump and dispose of vault wastes from F.S. summer home and organization camp permittees plus private summer homes at F.S. treatment facilities up to the capacity of the disposal and treatment system. The contractor would be responsible for operating the treatment facilities. This alternative should not be considered until we gain experience in plant operation and have eliminated any operational problems.

(4) Operation and Maintenance funding.

Block 41 of form 7400-1 provides information to the W.O. on the estimated annual operation and maintenance cost for each pollution abatement project reported on this form. We have been told by the W.O. that the Region has received all of the money this block indicated we needed for operation and maintenance. However, this money has not been identified for this purpose when the Region receives it and it is obvious that it has not been distributed to the Forests according to the needs indicated in Block 41. We will investigate this further with the W.O. and R.O. in an effort to determine exactly how O&M funding has been handled and identified.

In any event, it is quite easy to determine that operation and maintenance of pollution abatement and treatment facilities and operations are taking an increasing share of the program dollars available for this and other program purposes. In some cases, operation costs are so high that some facilities -- campgrounds etc. -- may have to be shut down because we cannot afford to operate what we have.

More effort must go into the planning and design of facilities having low operation and maintenance costs. It does no good to construct pollution abatement facilities we can't afford to operate. Like it or not, under these circumstances, closure becomes a more and more viable solution to pollution problems. We must also take a close look at the annual operation and maintenance costs of facilities before we construct them and, as accurately as possible, determine the overall effect on other existing facilities.

For example, the Bureau of Reclamation will construct new campgrounds at Meeks Cabin and Stateline Reservoirs. On the surface, this appears to be a fine opportunity

to obtain new facilities. But the Forest cannot afford to operate and maintain its existing campground to the standard considered necessary. Some determination should be made of the O&M costs of sewage facilities required by these campgrounds to get a true picture of total costs.

Costs for the operation and maintenance of sewer systems and treatment facilities is only one part of the overall O&M costs of the campgrounds, but could be the largest one.

As far as sewage system costs are concerned, there appear to be four alternatives. The first two (a,b) are viable, but the last two (c,d) are probably not. They are:

- (a) Have these campgrounds constructed as proposed and close less desirable existing campgrounds of like capacity and having similar O&M costs.
- (b) Have these campgrounds constructed as proposed and request O&M funds from Congress.
- (c) Request that these campgrounds not be constructed if we are to be responsible for O&M costs.
- (d) Have the campgrounds constructed and hope we can find money for O&M. This is what we have often done in the past, but we cannot continue to accept or construct additional facilities without first determining that sufficient O&M funds are and will continue to be available.

(5) Other funding problems.

Some other funding problems have been identified by the Forest. Though they may seem minor to some, they are very real problems with corresponding consequences which we cannot continue to ignore.

There is no way to indicate the need and cost to correct inadvertant errors in now existing facilities which were constructed under the pollution abatement program. This appears to be true whether the error was caused by faulty design or construction. There appears to be no way to get the dollars needed to made the corrections.

An example of this problem is found in the history of the Mirror Lake Campground. The campground was equipped with standard flush toilets and the treatment system was a series of septic tanks and a lagoon which was obviously a polluter. This system was replaced under this program by a mini-flush system with holding tanks. Before the change O&M costs amounted to normal comfort station upkeep and possibly a tank pumping once in a while.

Now, after the improvements have been put in at a cost of \$233,819, in 1974, the annual O&M costs have risen to a total of more than \$6,395. This is broken down into \$5,295 for pumping, hauling and disposing of the waste and \$1,100 for unplugging sewer lines. The season of use during 1974 was approximately 9 weeks long, so the average cost for the sanitary system alone is over \$700 per week.

With reduced funding, the district has little chance to continue this operation. Some other sanitary system or method must be constructed or implemented or the campground, which is already restricted to day use only, will have to close.

No money is provided for the preparation of O&M plans for existing facilities. Additional money, if it were available, could be used for post construction review of designs to improve our expertise and avoid costly design errors. Along with these problems, are those of manpower. If money did become available, there would have to be people to do the work.

h. New or different techniques, methods, or approaches.

We observed two or three items on the Forest which should receive more publicity throughout the Region. The Forest has modified the vault waste dump stations and bar screen installations at the Bear River and Provo River facilities. Regional Office design and maintenance personnel should observe these units under working conditions with the idea of recommending them for use on other Forests.

The Forest has pointed out that lagoons sized and constructed to criteria presented by the State of Utah for community systems seem to be larger than needed for our purposes. We agree that the Forest and Regional Office should work together to attempt to get a cooperative agreement with one of the local universities to review our existing lagoons and design criteria. Perhaps the Equipment Development Center or Research would also like to participate.

The Forest has placed some monomastic toilets—self contained units in single stall fiberglass buildings— at Pass Lake and other locations on the Forest. They appear to be needed installations which seem to be performing satisfactorily. We believe it would be useful to consider the installation of these or similar units in place of the mini-flush units at Mirror Lake Campground. The Landscape Architect would have to design some form of screening to make them look more presentable if the existing buildings were removed.

Some of the alternatives have been discussed along with the findings to which they apply.

Alternatives considered feasible and listed on pages 5 through 8 are analyzed below.

General:

1. The Regional Office needs to revise the direction to the Forests for the pollution abatement program and place it in the Manual. This is the starting point in strengthening the total program. Direction must be placed in Manual supplements so it won't be lost over a period of time. Direction by memo should be kept to a minimum and used only as an interim measure until appropriate supplements can be published. We can expect to lose the direction given by the Regional Office, as has happened in the past, if this alternative is not included in an action plan.
2. Additional emphasis should be placed on funding of the pollution abatement and sanitary facilities programs in the budget process. The Forest should identify O&M needs in the narrative portion of its budget proposals to assure that these needs receive adequate consideration in the funding process. Some means of identifying funds for these costs should be used on the Forest to assure that District Rangers know that funds for O&M have been received and given to them for this purpose.

3. Providing funds on "priority phase" accomplishment would stretch out the construction program. This would allow for better programming in the budget system. It would also prevent getting phases out of sequence, i.e., doing design before planning has been completed.

Spreading funding out over a longer period of time on a "priority basis" would better allow for needed changes to following budgets if initial phases of a project might be in an unfunded increment in any budget year. Extended funding should help avoid spur of the moment or snap planning and design decisions which might be incorrect.

4. Planning and design money could be provided in one fiscal year. An advantage of this kind of financing would be to assure that a project would be completely designed and could be placed on the shelf for future construction, if necessary. It is best suited to relatively simple projects which can be planned, designed and approved in a single year.

There might not be enough time to do all the planning and design work on big projects in one fiscal year. The Forest would have to use care in using this procedure because the fiscal year begins at about the time best suited for design work, but the planning phase may require some additional field work which cannot be performed during the winter months.

5. The Regional Office should increase personal contacts with the Forests as a good business practice. This increase in contacts would also help increase the interchange of ideas between Forests.

Project Planning:

1. Manual supplements can be prepared to give direction and emphasize the need for fulfilling planning requirements. Most people on the Forest appear to be unaware of EPA requirements which we must meet. This emphasis would also be enhanced through more personal contacts from the Regional Office.
2. Involvement of both management levels early in project planning stages would help reduce the time involved in obtaining approvals of engineering reports and other planning documents. It would also help us achieve a single united position when dealing with State and other Federal agencies.

3. The various units in the Regional Office should prepare examples of cooperative agreements and give direction to the Forests in dealing with local authorities and others on cooperative projects. This direction would help ensure some uniformity throughout the Region in our dealings with local authorities and others. Some exceptional cases would still have to be handled individually. Unnecessary problems are caused when we require each Forest to go through this process without Regional Office help and exchange of information.
4. The Forest has successfully delayed planning on projects involving local governments. This alternative is viable only as long as we have the flexibility to delay or adjust financing. It does not fit the advance input requirements of the budget process because of our inability to determine what local authorities will be doing far enough into the future to adjust our budget inputs to obtain the needed results.
5. Completing the planning phase of a project through the listing of alternatives and their estimated costs may help reduce the time needed to complete the total planning phase of project work after the local government decides upon a course of action. However, doing this much work before the proposed solution is known contains some amount of risk in loss of manhours and planning dollars. We might not include the selected solution or solutions in our listing of alternatives and some additional planning work could be necessary.
6. We must continue to emphasize the need for flexibility to coordinate with local governments. If funds cannot be carried over, we would encounter a timing problem in having the money in our budget when the local government decides to do something. The Mountainview project typifies a situation where money placed in our budget for one particular year would have been useless because there has been a long delay (years) on the part of the community in planning the project.
7. Forest and Regional personnel alike should work on being factual and objective in project planning. Some existing projects have built-in operation and maintenance or other problems which can be traced back to wrong assumptions in the planning phase.

Some things which have been assumed in the past should be proven and made fact during the planning stage in order to prove or disprove the viability of various alternative solutions.

8. This alternative has proven to be too risky and expensive to continue. Although it has saved some money during the planning stage in the past, it continues to cost money for rebuilding to fix design errors or to operate and maintain more intricate facilities than may have been required.
9. This is an important alternative for two reasons. When properly estimated, O&M costs give a better comparison between alternatives for the life of the project. In addition, it gives the facility manager a better idea of what annual costs he will incur and must provide for in his budget.

If this is not done, the manager is often surprised at O&M costs and does not include enough money for them in the budget. He may also lose the option of selecting a system with higher initial and lower annual costs.

Project Design:

1. The Forest can make good use of Regional Office experts early in the design phase to get the latest information and advice on developments in the field of sanitary engineering. Generally, Regional Office experts in this field are devoting all of their time to it while engineers on the Forest have other duties and cannot be expected to keep current with all aspects of sanitary engineering.

It is true that some few individuals can keep up but they place an extra burden on themselves in order to work without using the available Regional Office help. Early involvement of Regional Office engineers who must recommend approval of designs should reduce the total review and approval time needed.

2. The designers and reviewers can save time and money which would be needed for the operation and maintenance of systems if they will place more emphasis on and be more aware of keeping proposed designs low in estimated operation and maintenance costs.

Project Implementation:

1. The Regional Office should provide as much help to this Forest, as well as others, in describing and helping them follow the proper procedure in cooperating with local communities so the Forest Service can use their facilities. Without this assistance, we can expect additional costs for systems we may not need or we may get entangled in legal or procedural problems.

The Forest has asked for some of this help in the past but apparently has not received it.

2. The Regional Office should publish some direction to the Forest on how to enter into agreements with private parties to allow them to use Forest Service disposal and treatment facilities.

Direction from the Washington Office on the use of cooperative payments under these agreements has recently changed. These changes should be reviewed and new direction given to the Forest.

Facilities Construction:

1. There appears to be very little timely feedback to the Regional Office when the Forest encounters a problem in the construction of a treatment facility. Closer coordination could help prevent problems of a similar nature on other projects or help eliminate errors in design for other projects. One closely related example of the importance of feedback is the memo from the Forest to the Regional Architect recommending changes in the standard design of a toilet building. This kind of feedback saves time and money for all in the long run and should be encouraged.

Facilities Operation:

1. Identification of funds to operate and maintain sanitary facilities would remind the Forests of the annual costs of these facilities and the need to set money aside for these purposes. Those on some Forests feel that they should receive a separate amount of money to operate and maintain the facilities. The method of distribution now being used appears, on the surface, to penalize a Forest which must operate and maintain a treatment facility.

On the other hand, identifying a sum of money which must be used for the purpose of O&M of sanitary facilities reduces other options for money management which may have been available to the field. The land manager might not have options of closing some areas and treatment facilities as he considers most desirable if money is earmarked for O&M purposes.

2. This alternative attempts to improve communications between districts. If pumping contracts were traded around, along with comments on problems with them, better contracts and better pumping jobs should eventually result.

The Regional Office could also use samples of contracts to send to other Forests as models.

3. The Forest requested this alternative be included and it has merit. The Regional Office can investigate the possibility of providing water testing services to the Forest. The investigation should include costs and check into the possibility of offering the same service to other Forests. With the increase in required water testing, more testing facilities will be needed for testing and costs will rise. We should try to see that our lab facilities are utilized to best advantage.
4. Providing a technician to operate facilities Forest-wide would be dependent upon the amount of time required to do the job. Perhaps one person could do the total job with time left over or maybe more than one person would be needed.

Something would have to be set up for winter work for this individual to keep him employed so there would be some continuity and longevity in the position. Perhaps preventative maintenance performed on the facilities and equipment during the winter would fill this need.

A technician might be recruited from a technical school which has a specialty in the sanitary system operations field or one of the regular employees already on the payroll might be trained to fill the position. If an additional position is needed, a ceiling and financing would have to be provided.

5. The discussion of alternative (4) above also applies to this alternative. The difference between the two--the number of tasks the technician would perform--will be dependent upon the amount of time required for each assigned task.

6. This alternative—having the GDA responsible for facility operation—is how the job is now being performed on some Districts. The GDA may feel he needs some more formal training and on-the-ground experience to gain confidence. Operation of the facilities will take more time in the future. This means the GDA will not be able to perform all of the duties he has had in the past. Those he must give up to make room for his facility operation and maintenance assignments will have to be performed by others and may require the hiring of additional help.
7. There might be a possibility to have a private person or firm operate the Forest Service treatment facilities, as well as pumping vaults, provided all of the legal problems could be worked out. This possibility should be reviewed by the Regional Office to determine if the alternative is a viable one. In order to present an attractive package, we might have to try to allow the firm to haul from private vaults or septic tanks (up to the capacity of the system minus our needs).

Some disadvantages of this alternative would be that we would lose some control of our facilities, or the operator could overload our systems without our knowledge. We might also be faced with a contractor operating the facilities for the life of one contract and then not bidding again. We would then go through a period of adjustment in returning to Forest Service operation of the facilities.

Facilities Maintenance:

1. This is a must and will be covered in the Activity Review of the Operation and Maintenance of Sanitary facilities. The review is taking place on five National Forests. Information obtained from the Wasatch National Forest was used as additional background information for the review.
2. The same comments apply to this financing method as apply to (1) above.